USDA Agricultural Research Service

U.S. National Arboretum
Discussion Draft Strategic Plan for Discussion
November, 2012

INTRODUCTION

The nation's first presidents envisioned a national garden where the application of science towards improving agricultural and industrial uses of our plant resources would yield the economic prosperity crucial towards advancing our fledgling nation. As our vast natural forests were explored, American interests also extended abroad dispatching new plants and crops to Washington, D.C. at the bequest of Congress and the President. Here, they were catalogued and distributed through what would become the U.S. Propagation Garden within the Agricultural Division of the U.S. Patent Office, the pre-cursor to the Department of Agriculture. The botanical vision of the founding fathers was incorporated but left unfulfilled in each reiteration of the National Mall, until 1867 when an *Arboretum Americanum* – a grand national arboretum of scientific plant collections arranged in aesthetic landscapes – was begun on the grounds of the newly founded Department of Agriculture. By the end of the 19th century, calls for the expansion of the gardens and arboretum conflicted with designs for the National Mall and a new location was sought. In 1917, the U.S. Department of Agriculture approved a new site on a largely undeveloped tract between Mt. Hamilton and the Anacostia River in northeastern D.C. By now, the nursery industry, garden clubs, land grant universities, and associated scientific societies had combined forces with the Department, calling for the formal establishment of a national arboretum. Ten years later, on March 4, 1927, the National Arboretum Act becomes law, creating the U.S. National Arboretum "for the purposes of research and education concerning tree and plant life."

Today, more than one-half million people visit the U.S. National Arboretum in Washington, D. C. every year. They come for many reasons – the beauty of its 16,000 varieties of plants; its balance of cultivated gardens and natural landscapes; the quiet of its 446 acres only a few miles from the halls of Congress; and the opportunity to see and learn something new about the plant world.

But few visitors know they are coming to one of world's leading horticultural science institutions credited with introducing more than 650 cultivars of woody and herbaceous plants into the United States. In addition, the Arboretum is developing new approaches to detecting and treating plant diseases--meeting a critical need in our ever growing global economy; maintaining a large and invaluable inventory of germplasm and herbaria to enable research by scientists at the Arboretum and around the world; developing and testing new trees which can thrive in highly stressed urban environments; and protecting the horticultural and landscape industries, as well as agriculture generally, through the development of new methods for identifying invasive plants and pathogens at our borders.

The purpose of this strategic plan is to guide the direction of the Arboretum in its highly visible functions as a public garden and educational facility, as well as an enduring contributor of research needed to maintain a healthy and beautiful environment for future generations.

This strategic plan was developed by a panel of 12 experts in plant science and education, most of whom have substantial experience at the nexus of research and practice leading to sound environmental horticulture (the study of managing plants for their long-term contributions to environmental sustainability.) The panel was divided between those who work as part of the Agricultural Research Service, U.S. Department of Agriculture, and others at institutions which share the mission and goals of the National Arboretum. The panel supplemented their personal knowledge and experience with data from a survey they developed and conducted with substantial assistance from the Longwood Gardens Graduate Program at the University of Delaware. Using a Qualcomm-based system, the team developed a snow-ball method survey sample of National Arboretum stakeholders, including scientists; landscape industry leaders; public garden professionals; Arboretum employees, volunteers and visitors; stakeholder support groups (including garden club members, environmental groups, the Friends of the National Arboretum, the National Bonsai Foundation, and many others); neighbors and other interested parties. The more than 2500 respondents to the survey placed varying levels of importance on different attributes of the National Arboretum and its programs, but shared support for clearly defining the organization as a place of scientific discovery, where new plants, practices, and knowledge about ornamental and woody plans is renewed, displayed, and used to enhance the environment. They also view the Arboretum as a place where people connect with plants and develop understanding, appreciation, and a love of their aesthetic, economic, and environmental value.

MISSION STATEMENT

The U.S. National Arboretum enhances the economic, environmental, and aesthetic value of landscape plants through long-term, multi-disciplinary research, conservation of genetic resources, and interpretative gardens and exhibits.

VISION STATEMENT

The U.S. National Arboretum, a premier scientific institution, inspires discovery, understanding, conservation, and the love of plants. Connecting people with plants in a serene urban oasis with unique collections, gardens, and natural settings, the U.S. National Arboretum, through its programs and exhibits, demonstrates the practical application of plant science and man's dependence on plants.

CORE VALUES OF THE U.S. NATIONAL ARBORETUM

The following interrelated values underlie all of the strategic goals and objectives of this plan. These values will drive the way the plan is implemented, including discussions with employees, administrators, and program leaders in the Agricultural Research Service and the Department of

Agriculture, and external scientists, stakeholders, volunteers, visitors, and other interested persons.

DISCOVERY

The Arboretum is committed to innovation resulting from its research accomplishments. Its programs foster and support horticultural science and related fields that provide new plant materials and management approaches to improve the environment and sustain the people, industries, and systems that support the landscape. The Arboretum fosters and supports discovery by others by providing germplasm, scientific guidance, cooperation, collaboration, and training. It also creates an opportunity for discovery through the establishment of a learning environment – in person and remotely for staff, visitors, students, and other interested persons.

CONNECTIONS

The Arboretum is committed to integrating its functions, programs, and collections in a cohesive and mutually beneficial way. With science as the basis of programming, educational, interpretive, and demonstration activities will provide an opportunity for constituents to discover and connect to plants. The visitor experience at the Arboretum will be improved by linking new and heritage collections and showing the relationships among natural systems. A major aspect of connections is strengthening the Arboretum's relationships with other ARS scientists and labs, university researchers, public gardens, and conservationists. Similarly, the Arboretum will strengthen and expand partnerships with support groups and those who share aspects of its mission within the city, the nation and the world

SUSTAINABILITY

The Arboretum supports and embodies environmental sustainability through its research, education, and demonstration programs and seeks to model sustainability in program and garden management practices. The Arboretum also seeks to achieve operational and financial sustainability by expanding the base and stability of support for the Arboretum.

SERVICE

As a Federally supported public entity, the Arboretum values service to the American people, industries, and systems that support the landscape, the environment, and public and private lands. Service is reflected in the problem-solving research and conservation of plant genetic resources that are enhanced through educational programs and display gardens which disseminate these discoveries, technologies, and information.

ACCESS

The Arboretum ensures physical access to its collections and exhibits to all interested parties and intellectual access to the science-based knowledge, staff expertise, and learning opportunities for all. In addition, the Arboretum is a portal to understanding the plant sciences across the spectrum of agriculture.

STRENGTHS AND CHALLENGES FACING THE NATIONAL ARBORETUM

The Arboretum has a highly skilled and dedicated staff; long-term supporters and volunteers; and committed stakeholders in the community. It has a history of scientific discovery and development of plants and practices in environmental horticulture, and strong industry and scientific colleagues. The National Arboretum is located on 446 prime acres, 2 miles from the U. S. Capitol. Because of its location, it is part of a major green area of the city featuring beautiful, contoured and well-drained terrain, a newly renovated Administration Building, and extensive Herbarium and well-documented collections. The Arboretum is part of the local history and benefits from established neighborhood strength, as well as new developments in the area. Perhaps most significantly, the Arboretum has benefited from sustained, long-term, foundational support from ARS, its home agency.

A primary challenge facing the Arboretum with its multi-pronged mission of research, education, and public display gardens is its unconventional fit with the broader programs of its home agency, the USDA's Agricultural Research Service (ARS). The Arboretum became part of ARS in the early 1950s as a research unit within the Beltsville Area. About the same time, it opened its gates to allow the public to enjoy its collections, many of which reflected prior research emphases, such as the azalea breeding program. With the popularity of these collections, and a growing number of new gardens and features, such as the National Bonsai and Penjing Museum (established from an initial, bicentennial gift from Japan); the National Herb Garden; the Gotelli collection of dwarf and slow growing conifers; and additional privately assisted garden development, such as Asia Valley and Fern Valley, the popularity of the U. S. National Arboretum as a visitor destination has grown substantially. Today, it is among the 10 most visited public gardens in the United States.

The growth in public's interest and visitation to the U.S. National Arboretum has created the need to support unique, non-research functions, including some aspects of the current Gardens Unit and the Education and Visitor's Services Unit. Historically, these multi-mission programs of the Arboretum compete with projects focused exclusively on the science-based mission of ARS. Placing these programs in competition with science projects may limit these units' success in attracting new resources within the ARS budget request. As such, the Arboretum's institutional needs may be excluded in agency endorsed requests for new program funds.

As Federal resources have become more constrained, requests for funds needed to maintain and improve facilities, educational programs, exhibit and display elements, and visitors' services have been initiated through the independent actions of Arboretum supporters seeking Congressional budget add-ons. This is not a sustainable or integrated strategy for assuring long-term support for the Arboretum.

Strategic Plan

This strategic plan considers the strengths and challenges facing the Arboretum and proposes to address these issues by focusing on its core strength as a science-based institution. This commitment to science defines the Arboretum as a place of discovery, where research is

integrated into all of its functions and activities. As such, the Arboretum would strengthen and expand its service to ARS by not only honing and connecting its research mission to educational programs and visitor experiences, but also becoming a public showcase for plant science. This will require diversifying its funding sources and creating new approaches to managing resources from both appropriated and non-appropriated sources. And, it may require redefining partnerships with the Arboretum's support and advocacy groups, scientific colleagues, and institutions that share its mission.

The U. S. National Arboretum's Strategic Plan aligns broadly with the 2006-2011 ARS Strategic Plan under Strategic Goal 2: *Enhance the competitiveness and sustainability of rural and farm economies*, and specifically under Objective 2.2: *Increase the efficiency of domestic agricultural production and marketing systems*, including Performance Measure 2.2.3: *Expand, maintain and protect genetic resources*.

Systematic maintenance and broad-based use of the Arboretum's nearly one million element germplasm collection (800,000-item Herbarium, 150,000 seed Herbarium, and extensive living collections of environmentally important plants) expands the value of these genetic resources to other research institutions, plant breeding operations, the nursery industry, and property owners.

The Arboretum's strategic plan also links to ARS Strategic Goal 6: *Protect and Enhance the Nation's Natural Resource Base and Environment.* Arboretum research particularly related to development of low-input turf grasses, environmentally tolerant urban trees and shrubs, and drought-resistant plants contribute to both conservation and restoration of watersheds.

The Arboretum's strategic plan also aligns with the USDA Research, Education, and Economics (REE) strategic plan, which emphasizes both the conduct and dissemination of research through academic programs and citizen education. A strategic goal of the Arboretum is to enhance public understanding of agriculture, particularly the plant sciences, through displays and exhibits featuring agency and other publically supported research. Further, the plan calls for expanding the use of the Arboretum as a convener for discussions of new research approaches, issues, and opportunities to advance science for agriculture and the environment.

STRATEGIC GOALS AND OBJECTIVES

STRATEGIC GOAL 1:
Ensure the National Relevance of U.S. National Arboretum Research to the Agricultural Research Service, other Scientific Institutions, Stakeholders, and the Public

A critical challenge facing the Arboretum is in establishing a clear identity as a plant science institution, focused on environmental and landscape horticulture, as well as showcasing the breadth of agricultural research. This must be accomplished in a scientifically credible manner, while being aesthetically effective and engaging visitors.

Both within ARS and the USDA, as well as among public visitors, there is often misunderstanding of what are the goals and purposes of the Arboretum. It is frequently viewed as a park, or "plant zoo," created for recreation and contemplation. Although those activities are

welcome benefits derived from visiting the grounds, the Arboretum is an active place of discovery. Scientists conduct individual and collaborative research at the Arboretum and its greenhouses, laboratories, and facilities in Beltsville, Maryland, and McMinnville, Tennessee. Educators create programs and interpretative aids to help visitors – in person and through the Web site – to experience the excitement of learning about plants in nature and through cultivation. In addition, the public gardens collect, preserve, and display valuable germplasm to assist in future research; serve as a testing ground for exploring plant cultural and edaphic requirements and production challenges; evaluate new and improved cultivars of economically, environmentally, and aesthetically valuable plants; and provide the public with the opportunity to see the results of current and past ARS research accomplishments.

The Arboretum is also a focus of cooperative and collaborative efforts to develop, protect, and preserve trees and woody plants. As such, it needs to better explain its roles as part of a larger horticultural science community and the industry and people who are supported by this work. The Arboretum maintains a substantial herbarium; is a founding partner in the North American Plant Collections Consortium (NAPCC); an active participant in the ARS National Plant Germplasm System and other multi-institutional scientific efforts; and host to students, post-doctoral fellows, and other professionals developing expertise and credentials in horticulture. The Arboretum has substantial opportunities to expand its role and visibility as a national leader in environmental horticulture.

The needs of the research, education, and public garden functions of the Arboretum are substantial and increasing as recent declines in staff positions and resources further constrain our efforts. This had made finding the initial investment of resources to establish new or maintain existing partnerships challenging. However, the long-term success of many programs is dependent on sustained partnerships with agencies and organizations which share aspects of the Arboretum's goals and activities.

The needs of stakeholders, including the landscape industry, homeowners, and communities, are served by the research conducted by the Arboretum staff, and disseminated through public education, exhibits and displays. Historically, the most noted focus of the U.S. National Arboretum's research has been on breeding improved trees, shrubs, and herbaceous plants, particularly to expand the geographic and climatic range in which these plants succeed. The challenge for the Arboretum is to continue to selectively breed plants for sustained value in the environment (especially those requiring long-term research and development), while diversifying the research portfolio to expand fundamental breakthroughs in plant science to benefit horticulture, particularly plant protection, environmental management, and disease identification and control. This will require collaborative planning of research priorities with other scientific, industry, horticultural, and environmental interests through joint priority setting, multi-institutional efforts, and participation of U. S. National Arboretum scientists. The resulting engagement will help redefine the leadership of the Arboretum in creating and disseminating the knowledge needed to advance environmental horticulture.

> **Objective 1.1:** *Strengthen the U. S. National Arboretum identity as one that denotes science-based information, germplasm conservation and access, plant introduction, and research.*

Strategies:

1. Take advantage of the Arboretum's education mission and vast public space to showcase applied research. Serve as the conduit between research and research application in the public understanding of science in agriculture.
2. Identify and solicit support from commercial agricultural interests to implement exhibits; Identify and solicit support from other plant breeding and improvement programs within ARS for projects which may have mutual benefits.
3. Plan and implement garden exhibits that interpret American agriculture and its economic importance to highlight the role of USDA and ARS in these industries and implement exhibits in scholarly, yet engaging ways.
4. Expand opportunities for participation of Arboretum staff across units and programs in science-based meetings.

Objective 1.2: *Leverage the U. S. National Arboretum's national status to advance research and germplasm conservation.*

Strategies:

1. Establish a culture of collaboration and develop a strategy to promote national and international engagement and outreach. This will allow the Arboretum to convene discussions of issues such as the Convention on Biological Diversity (CBD), foster nationally recognized plant collections and international exchanges, and advance collaborative research and education.
2. Expand existing and establish new collaborations with collection-based institutions to increase access and use of plant germplasm.
3. Expand work with researchers and collections within the broader National Plant Germplasm System to better address horticultural germplasm issues and programs.
4. Leverage relationships with international agencies and scientists to share recent methods and findings and obtain plant material from foreign sources that fill gaps in domestic germplasm collections.

Objective 1.3: *Strengthen and expand collaborations with ARS and other Federal scientists on projects of mutual benefit or where public visibility of field experiments would advance public understanding of the issue*

Strategies:

1. Work with researchers and collections within the National Plant Germplasm System to better address national germplasm issues and other shared research interests.
2. Advocate broader use of the USNA's Herbarium resources within ARS, including the National Plant Germplasm System. Advocate broader use of the USNA's Herbarium resources within ARS, including the National Plant Germplasm System.
3. Work collaboratively with U.S. Forest Service urban tree breeding programs and researchers to leverage the various Federal programs toward mutually agreed goals.

Objective 1.4: *Increase accessibility of the U. S. National Arboretum research, plant collections, and staff.*

Strategies:

1. Expand and diversify the U. S. National Arboretum's research portfolio to better reflect the needs of stakeholders, and critique programs to assess currency and relevancy.
2. Explore opportunities in the area of plant breeding including, re-evaluating ornamental breeding programs and "legacy" breeding efforts as to their possible marketability to the nursery industry and the public.
3. Utilize the Arboretum's Living Collections Policy Committee to consult with university, industry, and private plant breeders to assess and coordinate priorities for collecting and maintaining living collections and germplasm.
4. Expand collaborations with NAPCC and other collections-based arboreta and public gardens, and explore and identify potential funding opportunities for visiting collections managers and curators to work at the Arboretum, utilizing the institutions' germplasm resources.
5. Create highly competitive internship opportunities for students utilizing the germplasm resources of the Arboretum.
6. Explore and identify opportunities to convene meetings and conferences for scientists, horticulturists, and garden professionals at the Arboretum.

STRATEGIC GOAL 2:
Increase the public and stakeholders' awareness of and engagement with the U.S. National Arboretum and its programs

A second goal of the Arboretum is to increase public awareness and engagement with its programs. Fundamentally, this is the need to create and implement a communications plan, supported by highly valued research accomplishments and excellent exhibits, displays, and programs to make the Arboretum a recognized, national treasure, and a must-see destination in the Nation's capital. Currently the U.S. National Arboretum is often called a "hidden gem." This plan calls for polishing that gem and taking full advantage of its prime setting two and a half miles from the U.S. Capitol. For those who cannot literally travel to the Arboretum, the organization will expand its Web presence to include scientific and educational Webinars, including collaborations with groups such as Master Gardeners. Similarly, the Arboretum will initiate joint efforts with local institutions, such as the Smithsonian and the U.S. Botanic Garden, to create programs that emphasize gardens in the metropolitan area.

Opportunities to strengthen relationships with related USDA and other government stakeholders will be pursued, particularly with the U.S. Forest Service, the Animal and Plant Health Inspection Service (import quarantines and risk assessment, the National Clean Plant Network initiative, and general control of invasive species), and the Natural Resources Conservation Service, especially in regard to the PLANTS database. Similarly, other organizations that have a dual mission of conservation and recreation may have created management strategies which the Arboretum could review and potentially emulate to address challenges of meeting public needs with limited resources.

With growing national concern about Science, Technology, Engineering, and Mathematics (STEM) education, the Arboretum should position itself as a focus of plant science and

environmental education. The grounds of the Arboretum are a living laboratory and the staff a wealth of knowledge and expertise that can be used to inspire students to study plants and the ecosystems of which they are an essential part. The Arboretum could integrate the research performed across ARS with educational programs and displays for citizens who are "K-Through-Gray." For example, working with the long-established Washington Youth Garden, the Arboretum could develop children's guides to the collections, with games and family experiences, to help youth understand the underlying science of plants.

As one of the largest and most critical green spaces in Washington, D.C., the Arboretum shows the natural state of this mid-Atlantic city. The Arboretum also plays an important role in Chesapeake Bay watershed management, particularly for the Anacostia River. The Arboretum could expand its current engagement with the District and regional governments to serve as an example of outstanding environmental management, particularly water management, and to contribute to local greening programs, such as neighborhood gardening initiatives, rain garden development, and evaluating trees and shrubs for the local, urban environment.

Objective 2.1: *Develop and implement an outreach strategy to create a "brand" for the U.S. National Arboretum as a vital and dynamic institution serving the Nation and as a must-see destination in the Nation's Capitol.*

Strategies:

1. Develop an aggressive and effective communication strategy reflecting the work of the Arboretum that could benefit every citizen, in every Congressional District.
2. Develop an exciting and informative Web presence that is inviting to the public and shows the critical role plants have in our global environment.
3. Develop "on the road" experiences and virtual access to the Arboretum (demonstration and other hard materials to pack and transport, as well as Webinars, etc.).
4. Investigate a strategy to brand plants, products, and practices developed by the Arboretum.

Objective 2.2: *Communicate the mission and strategic direction of the U.S. National Arboretum to highlight its role and relevance to internal and external stakeholders.*

Strategies:

1. Engage and promote the Arboretum to the various plant societies and organizations who share an interest in both the public display gardens and research efforts of the facility.
2. Work with national stakeholder groups to support the development of an engaged national audience.
3. Seek ways to emphasize a common national agenda with partners in industry, universities, and scientific organizations.

Objective 2.3: *Instill with the public the excitement, value, and importance of plant science in their lives.*

Strategies:

1. Collaborate with educational institutions to provide materials and guidance for K-12 teachers to incorporate plant sciences into biology, mathematics, ecology, and other curriculum; utilize the Arboretum facilities and collections to model, demonstrate, and practice programs.

   Expand youth education at the Arboretum in collaboration with the Washington Youth Garden. Coordinate with others to develop new approaches to engage students, teachers, and citizens in discovery-based, plant education.

Objective 2.4: *Develop a strategy to become a vital member of the larger local community*

Strategies:

1. Provide educational/training opportunities on environmental issues important to the local community such as water management, urban greening, or street tree initiatives.
2. Expand opportunities for citizens to engage in the benefits and joys of gardening.
3. Establish and maintain working relationships with the appropriate D.C. government departments.
4. Work with new and existing commercial development in the neighborhood on a collaborative Arboretum marketing strategy.

STRATEGIC GOAL 3:
Enhance the visitor experience of the U.S. National Arboretum.

Since its creation in 1927, the Arboretum has served dual roles as a research and education institution and as a public display garden. These roles have functioned somewhat independently of one another thus diminishing opportunities for program integration and, at times, leaving the display gardens as an afterthought to the research programs. Addressing this issue will require two sets of actions: First, integrating research and display functions around the science-based theme of plant discovery to reflect the Arboretum's mission will add clarity to the visitor experience, and second, improving the facilities and spaces while adding multiple functionalities simultaneously expands program opportunities and concession income potential for the primary benefit of the display gardens.

Central to this effort is the goal of establishing a "Plant Discovery Center" which would serve as a concept and ultimately a venue for plant science education and as a place to convene scientists for dialogue about opportunities, approaches, projects, and accomplishments to advance a broad range of issues in the plant sciences. A newly constructed Center also would host improved visitor amenities; exhibits on plants; environmental management through plants and related landscape issues; and provide a central gathering point for Arboretum visitors. As an immediate step in achieving an improved visitor experience, the National Arboretum must update and add satellite restrooms, continue to work with partners to modernize the gift shop, and expand concession opportunities utilizing existing spaces. Some of this can be achieved through new

policies and use management of recently renovated space in the Arboretum's administration building.

The Arboretum works to continuously maintain, modernize, and develop garden displays and collections, however, information about and interpretation of these changes are not always available in a timely manner. The development of a strategy to incorporate additional signage and interpretative materials should be incorporated in planning for new and current displays. In addition to improved way finding throughout the Arboretum, this should include a strategy for implementing a more vigorous program of docents and garden guides, primarily utilizing highly skilled volunteers.

Although the Arboretum is not a park and is not designed–for recreation, the lay-out of the facility and its roads and trails lend themselves to outdoor activities, especially for walking, biking and as a natural classroom. To encourage attendance, the U.S. National Arboretum needs to develop a strategy to collaborate with local government and emerging businesses in the area to expand accessibility to the facility by way of links to the District's public transit system, and by alternate means, such as bicycles.

Similarly, since more than 70,000 vehicles drive by the New York Avenue boundary of the U.S. National Arboretum daily, the Arboretum needs a strategy to develop better signage, and perhaps signature plantings, and a sense of arrival at its major entrances.

Objective 3.1: *Improve the amenities and visitor services on the grounds.*

Strategies:

1. Create a new concept for plant science education at the Arboretum as a hub to convene scientific discussions on important issues and opportunities towards the advancement of plant sciences.
2. Establish the visitor's center as an extraordinary destination with engaging exhibits and as a gateway to the garden collections.
3. Expand other facilities, including food service, satellite rest rooms, shuttle stops, seating areas, pervious parking lots, lighting, and signage.
4. Develop a docent program with scheduled and by-appointment tours to increase access to the Arboretum collections; create educational programs to train docents for engaging specialized groups such as Master Gardeners, garden clubs, schools, and other community groups.

Objective 3.2: *Enhance the garden display experience*.

Strategies:

1. Create a coherent link between visitor center and garden displays to research programs and environmental projects to connect the garden aesthetic to discovery. Implement new technologies for user-friendly systems for on-site plant identification and location.

2. Invite ARS plant science laboratories and researchers to participate in collaborative development of exhibits that showcase their relevant discoveries at the Arboretum.

Objective 3.3: *Enhance the visibility of the U.S National Arboretum.*

Strategies:

1. Improve transportation and public access to the Arboretum, exploring public transportation such as a shuttle bus from a metro station or the National Capital mall.
2. Explore potential resources and support for enhancing curb appeal along New York Avenue and Bladensburg Road with improved signage and Arboretum specific planting creating a sense of arrival.
3. Create a way finding system of directional signage and easy to use graphics.
4. Link the National Arboretum to other tourist attractions, such as gardens and tours, and what's in bloom in newspapers and websites.
5. Examine hours of public operations to determine if seasonal changes are needed.

STRATEGIC GOAL 4:
Ensure the long-term sustainability of the U.S National Arboretum.

The long-term stability of the Arboretum is dependent upon implementing a new business model that balances appropriated, contributed, and concession income in a sustainable manner. This is particularly true for maintaining the public gardens and educational programs of the Arboretum.

The new support model for the Arboretum will expand public-private partnerships, not only for financial support, but also for joint planning and potentially for operations of some functions of the Arboretum, particularly visitor services and amenities. This can begin by clarifying and re-codifying the functional relationships with the current primary support organizations, including the Friends of the National Arboretum (FONA), the National Bonsai Foundation, the National Capital Area Garden Clubs, and the National China Garden Foundation. New memoranda of understanding (MOUs) need to be developed that emphasizes cooperative planning and goal setting where appropriate. Ultimately, the Arboretum may benefit from a new support system organized as a jointly managed foundation similar to several existing models, such as the National Parks Foundation. This plan calls for review of those models and deliberation as to whether authority should be sought to create a structure which can expand and stabilize private support to assist with U.S National Arboretum operations and development.

Across the spectrum of activities performed by the U.S. National Arboretum there are opportunities for expanded stakeholder involvement. For example, in collaboration with the Office of National Programs, the horticultural and landscape industry, as well as scientific and research colleagues around the Nation, could be invited to more specifically assist in reviewing

environmental horticulture research priorities and projects. In addition, given the unique service nature of several of the projects conducted through the Arboretum, a new strategy for reviewing multifunctional activities could be developed in collaboration with the Office of National Programs. This could result in systematic review for all integrated activities of the Arboretum, as well as research programs.

The Arboretum, as a place of discovery, needs to work with a wide range of partners to create a sense of newness and excitement that sustains interest and support for its research, education, and gardens mission, and helps people value plants as an essential part of the environment.

Objective 4.1: *Establish public-private partnerships to facilitate collaborative enhancements to the U.S National Arboretum mission.*

Strategies:

1. In the immediate term, develop a new MOU with FONA, the Arboretum's primary private partner, to provide the mechanism for the organization to become a more effective force for the long-term sustainability of the Arboretum. Explore ways to create a shared vision that partners embrace and collaboratively move forward.
2. Streamline agreements with other partner organizations to focus on planning and mutual support for collaborative activities.
3. Develop resources to create a new master plan with priorities that is shared with the public and potential donors.

Objective 4.2: *Explore and pursue promising alternative funding strategies.*

Strategies:

1. Explore opportunity for partnering and in-kind contributions from industry and professional organizations for Arboretum-initiated exhibits.
2. Develop environmental sustainability demonstrations and related activities that could be supported by public granting agencies and organizations.
3. Expand the utilization of collaborative agreements for obtaining funding from outside sources.

Objective 4.3: *On-site revenue generation***.**

Strategies:

1. Explore options for additional new revenue through special events, weddings, corporate outings, and other activities with emphasis on mission-relevant activities; review facilities use practices, with emphasis on mission-relevant activities; review facilities use practices.
2. Explore the potential for increased revenue from charging admission and parking fees.
3. Continue, and potentially expand upon, regularly scheduled revenue activities, such as those supported by partner organizations, including FONA. These include developing innovative, collaborative approaches to events and sales.

Objective 4.4: *Develop a gifts/donations plan and policies that can support operations, programs, and capital improvements.*

Strategies:

1. Review structures and authorities of Arboretum support groups to coordinate planning and execution of fund-raising approaches, including consideration of establishment of a jointly managed foundation (public/private partnership) for the Arboretum.
2. Collaboratively create an integrated gifts plan with major support groups of the Arboretum, including FONA, the National Bonsai Foundation, and the National China Garden Foundation (see box on the China Garden) to support immediate, on-going, and long-term operational and capital improvement goals.
3. Develop new organizational structures and adapt instruments for managing donor interests and funds, including endowments and special purpose funds.

CONCLUSIONS AND NEXT STEPS

This strategic plan is designed to provide a broad framework for decision-making at the U. S. National Arboretum over the next 5 years. Both the values of the Arboretum as well as the strategic objectives can help to limit and focus actions to those intended to achieve the mission of the organization. For example, this plan suggests that the Arboretum will substantially emphasize those actions which integrate its core research functions across all of the programs, displays, investments, and decisions of the Arboretum. Similarly, projects which integrate and link collections with one another, to broad goals (such as demonstrating sustainable management of horticultural assets), and to community enhancement will have priority for use of human capital and financial resources.

The plan also suggests that a greater portion of what the U.S. National Arboretum accomplishes will be in partnership or collaboration with others, both to maximize the resources needed to support initiatives, but also to extend the impact of its work. This may require redefining some partnerships to emphasize aspects of the mission, particularly broadening linkages to plant science research activities across the agency, and with other research gardens across the nation.

POTENTIAL PROGRAM INITIATIVES FOR THE U.S. NATIONAL ARBORETUM

<u>"Greening the Urban": an opportunity for research and discovery at the USNA and national partners.</u>

More than at any other period in history, people are living in cities. As our urban areas develop, there is increasing recognition of the importance of vegetation to provide a whole host of ecosystem and social services. These include heat-island effect moderation, biodiversity corridor preservation, storm water mitigation, improvements in human health, and of course psychological benefits. Unfortunately, due to poor infrastructure and inherent environmental stresses, healthy urban forests are challenging to establish and maintain. Furthermore, there is

but a limited candidate pool of trees tolerant of the vagaries of the urban environment. And, of those known for their abilities to survive challenging sites, too many possess invasive traits that make them undesirable from both ecological and social perspectives. An opportunity exists for a substantive, long-term, research campaign that comprises three inter-related themes: Infrastructure, Stress Tolerance, and Invasiveness.

Infrastructure improvements. A basic and applied research program can identify how to build cities in ways that successfully support healthy trees that reach maturity and present canopies that successfully deliver desired ecosystem and social services. The paradigm must incorporate the latest advancements in engineering, city planning, and architecture – but is built upon a foundation of tree biology.

Stress tolerance. We must survey a broad range of raw materials (including wild-collected species, natural and artificial hybrids, cultivars, etc…) and evaluate them for their potential candidacy as successful street trees based upon empirical evidence. We must then develop protocols to improve upon the raw materials to create a diverse, variable, productive, and urban-tolerant selection of trees for use in every Tree City USA. To accomplish this task, the methods must incorporate traditional but primarily modern technologies.

Invasiveness. The lessons of reproductive and developmental biology learned from model systems must now be extended to street trees to respond to specific problems such as invasive ecology. Specifically, genetic modification can be used to induce sterility in species that, aside from their high fecundity, would be ideal street trees because they possess traits of urban tolerance. While this may exclusively focus on fruit development, modification to eliminate pollen production can also be pursued to respond to pollen-induced allergies.

None of these solutions is easy. All of them require significant resources. Resources required include International Leadership, Strong Advocacy, Long-Term Commitment, and of course significant Human and Laboratory Capital. However, this is a Sputnik Moment that deserves our attention. Every senator and representative has a city in their district.

<u>Creating a Center of Excellence in Asian Plants: Linking Current Asian Collections with the National Bonsai & Penning Museum and the Classical Chinese Garden to be established at the U.S. National Arboretum</u>.

Currently the U.S. National Arboretum is home to one of the Nation's best collections of Asian plants, primarily housed in Asia Valley along the Anacostia River. In addition, as a result of a Bicentennial Gift from Japan to the U.S., the National bonsai and Penning Museum has a collection of nearly 300 premium bonsai and penning, representing a unique cultural practice with woody ornamentals and trees. The China Garden at the U.S. National Arboretum will offer one more place to find peace, tranquility and classical Chinese culture in our nation's capital. A joint project between the U.S. Department of Agriculture and the People's Republic of China Academy of Forestry, the China Garden promises to become an important destination in Washington, D.C. As a living classroom, it will help to foster a better understanding of Chinese culture, provide research opportunities in Asian gardens and plants, and symbolize a

commitment to continued friendship between the United States and China. This garden will illustrate the commitment our two countries have to horticulture, science and the arts and will serve as a testament to our countries' celebrated cultural histories. The China Garden Project also will allow expansion of collaboration between Chinese and American scientists in plant exploration, development of new cultivars of environmentally important taxa, and to jointly improve knowledge of the attributes of sustainable environments.

In January, 2011, Agriculture Secretary Tom Vilsack and China's Ambassador to the United States Zhang Yesui signed a Memorandum of Understanding to construct a classical Chinese garden at the U.S. National Arboretum in Washington, D.C. The China Garden project has its roots in a 2004 gift from the Government of China and represents an opportunity to build a permanent tribute to U.S.-China relations in our nation's capital. The People's Republic of China is to provide some 22 structures, classical Chinese art and furnishings, as well as some of the landscaping and rockeries for the garden, while the United States will provide site preparation, utilities, plants and long-term maintenance and operation of the completed Garden. The National China Garden Foundation, a 501(c) (3) non-profit organization, was established in early 2011 and will champion the garden and raise funds for construction and maintenance. Once completed, the U.S. National Arboretum will own the China Garden. Set on 12 acres in the heart of the U.S. National Arboretum located in northeast Washington, D.C., the China Garden will welcome visitors to a perfect blend of nature, art and architecture unlike any other on the East Coast. In combination with existing heritage collections, the China Garden will complete a center of excellence in Asian plants and plant culture at the National Arboretum and expand opportunities for new multi-national collaboration.